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RADIATION WORK PERMIT

FACILITY: OC 1 YEAR: 09 RWP NUMBER: 00057 REVISION: 01 TYPE: WGR

LOCATION: MULTI QQQ ELEVATION: _____ ROOM: _____ AREA: _____
TITLE: MECHANICAL MAINTENANCE/ELECTRICAL MAINTENANCE

INITIATED: 01/22/09 SCHEDULED START: 01/26/09 EXPECTED COMPLETE: 01/01/10
ALARA CATEGORY : 0

PROTECTIVE CLOTHING AND RESPIRATORY PROTECTION REQUIREMENTS

				Excavation	

DOSIMETRY REQUIREMENTS

EXTREMITY - HANDS : ___ MULTIPLE DOSIMETRY: ___
EXTREMITY - FEET : ___ RELOCATE DOSIMETRY: ___ ION CHAMBER : ___
ALARMING DOSIMETER: Y SET TO ALARM AT: 15 MREM OR AT: 40 MREM/HR

ADMINISTRATIVE / EXPOSURE CONTROL REQUIREMENTS

MINIMUM TEDE BALANCE OF 200 MREM REQUIRED FOR ENTRY
PRE-JOB MEETING REQUIRED : N AUTO ENTRY/EXIT PERMITTED : Y
WORK ORDER NUMBER REQUIRED: N SIGNATURE CHECK AT SIGN-IN: Y

HEALTH PHYSICS COVERAGE AND MONITORING PERIOD

SURVEY FREQ: 1 ROUTINE SURVE REQD-IF: UPON CHANGE OF RADIOLOGICAL CONDIT
HP COVERAGE: INTERMITTENT

SPECIAL INSTRUCTIONS / REMARKS

MECHANICAL & ELECTRICAL MAINTENANCE.
* KNOWLEDGE OF RAD CONDITIONS REQ'D PRIOR TO ENTRY TO RCA W/OUT RPT ESCORT.
* WORKERS SHALL WEAR DOSIMETRY SO THEIR EXPOSURE CAN BE MONITORED IN THE RCA.
* PC REQUIREMENTS PER RADIOLOGICAL POSTINGS OR PER RP.
* SEE RADPRO RP JOB STANDARDS FOR RESIN CHARGE TO CATION TANK.
* CONTACT RPS PRIOR TO SYSTEM OPENING FOR SURVEY CONSIDERATION.
* THIS RWP IS NOT VALID FOR HRA,LHRA,VHRA.
* REF. OE22661 - INADEQUATE FME BARRIERS.
DURING THE DISASSEMBLY OF SERVICE WATER PUMP "A", A THREE POUND BRASS WEDGE APPROXIMATELY 5" X 2", DROPPED INTO THE SERVICE WATER BAY DUE TO INADEQUATE FME BARRIERS DURING PUMP MAINTENANCE.

APPROVALS / TERMINATION

	Name	Date	Signatures
PREPARED BY :	BUCHTA,J	01/22/09	
WORK SUPERVISOR:	MECH MAINT	01/22/09	
HP SUPERVISOR :	RPS	01/22/09	
TERMINATED BY :			
POST JOB REVIEW:			

RADIATION WORK PERMIT

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LOCATION: MULTI QQQ ELEVATION: _____ ROOM: _____ AREA: _____

TITLE: MECHANICAL MAINTENANCE/ELECTRICAL MAINTENANCE

TASK NBR	DESCRIPTION
000	OPS - OTHER
****	*** END OF WORK PERMIT REPORT ***

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PROD REGION

RADIATION WORK PERMIT

TITLE: MECHANICAL MAINTENANCE/ELECTRICAL MAINTENANCE

OC-1-09-00057 OC1090005701

HP COVERAGE CODE: INTERMITTENT

ALARMING DOSIMETER: Y ED SET POINT: 0015 MREM OR 0040 MREM/HR

SPECIAL INSTRUCTIONS / REMARKS

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COPY from Original 6/24/09 Jim Roberts

MAP 09-57

ATTACHMENT 9
Micro ALARA Plan (MAP) Work Sheet

RWP Number:	OC-1-09-00057	MAP Number:	2009-57	WO Number:	C2021071
Job Description:	Excavation of Underground Piping West of Turbine Building Due to Suspected Leakage				
Original Estimates:					
Exposure:	5 Millirem	Time:	0 RCA	. person-hours	
MAP Estimates:					
Exposure:	5 Millirem	Time:	0 RCA	person-hours	
Exposure Challenge Goal:	5 millirem				

Note: MAP Estimates at or above 1000 millirem (1.0 rem) require formal ALARA Plan documentation.

Review Work Scope, utilizing job site walkdowns and craft input meetings as necessary, to evaluate the following Micro ALARA Planning controls and concepts:

MAP Concept / Control	*Yes*	*No*	*N/A*	*MAP Concept / Control*	*Yes*	*No*	*N/A*
Minimize Crew Size	☐	☐	☑	Modify System Configuration	☐	☐	☑
Utilize Low Dose Area	☐	☐	☑	Use Mock-up Training	☐	☐	☑
Use Experienced Craft	☐	☐	☑	Re-Sequence / Schedule	☐	☐	☑
System Flushing	☐	☐	☑	Improve Physical Work Area	☐	☐	☑
Hydrolasing	☐	☐	☑	Remove Component to LDA	☐	☐	☑
Shielding Installation	☐	☐	☑	Use HEPA Ventilation	☐	☐	☑
Remote Monitoring	☐	☐	☑	Develop High Rad Trash Plan	☐	☐	☑
Remote Tooling	☐	☐	☑	Use Teledosimetry	☐	☐	☑
Robotics	☐	☐	☑	Scaffold Type Review	☐	☐	☑
TEDE ALARA / RRPCE	☐	☐	☑	Work Bundling	☐	☐	☑

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MAP 09-57

ATTACHMENT 9
Micro ALARA Plan (MAP) Work Sheet

Describe Micro ALARA Plan controls implemented and expected benefits:

- Minimize the number of personnel entering the work area to those required to do the work.
- Due to the presence of underground piping with dose rates that have not been recently checked, Radiation Protection will perform radiation surveys during the excavation work.
- Currently, the excavation areas are **not** Radiologically Controlled or Radioactive Materials Areas. However, dose rates in excess of 1.6 mR/hour may exist due to the presence of underground contaminated piping. **IF** 1.6 mR/hour is detected in the excavation, **THEN** workers will require personnel dosimetry. RP Department will stop work and notify workers if > 1.6 mR/hour is detected.
- **IF** dose rates of ≥ 5 mR/hour are detected, **THEN** a Radiation Work Permit will be required. RP Department will stop work and personnel will be required to be briefed and sign in on a Radiation Work Permit.
- Soil removed from the excavation shall not be removed form the Oyster Creek Protected Area. Soil shall be stored on a waterproof tarp and covered with a separate waterproof tarp.
- Soil shall be sampled by Chemistry Department at approximately each one foot of depth during the excavation.
- Peer review by RP personnel at another Exelon site was performed. Based on previous experience dealing with tritium leakage, it was indicated that tritium concentration in excess of 1E+07 picocuries per liter would require institution of controls such as personnel and equipment contamination monitoring. The highest level detected in ground water as of this writing was 4.7E+06 picocuries per liter. 1E+07 picocuries per liter equals 1E-02 microcuries per milliliter, which exceeds the tritium concentration in suspected leakage sources such as Condensate, CRD, and Core Spray.

Review / Include applicable Operating Experience, Lessons Learned, and job history:

OE

An INPO OE Digest summarizes areas for improvement (AFIs) written because of weaknesses noted in protecting buried piping. Plant evaluations identified that monitoring, inspections, and processes that control the environment around the exterior of piping systems are not being implemented well, which increases the station vulnerability to pipe failure. Degradation of buried piping can adversely affect plant safety and reliability, especially if the degradation remains undetected for a long period of time. Leaks in some buried piping have also contaminated the soil with tritium and fuel oil, which could leak into ground water or nearby lakes and rivers.

It is important to protect buried piping as stations extend their operating life. The pipe interior can be protected by adding chemicals to reduce the corrosion rates and prevent the buildup of biological organisms and by applying coatings. Mechanically cleaning the pipe interior can reduce operational risk

from fouling, but it does not provide interior piping protection. The pipe exterior can be protected by using exterior coatings and cathodic protection systems. One station is currently replacing, coating, or lining all of its raw water pipes - including buried piping - at a cost of over $250 million.

In 2006, plant evaluation teams have identified eight ineffective programs for protecting buried piping, resulting in AFIs. This adverse trend continues in 2007. Descriptions of the 2006 AFIs related to buried piping can be found in the following links: 2006 ER2 and 2006 ER3. The following is a summary of 2006 AFIs.

Problems

- Pipe degradation was not being monitored for some important buried piping.
- Portions of the cathodic protection system were inoperable for an extended time.
- The cathodic protection system did not operate within the desired impressed current and voltage ranges.
- No strategy had been implemented for long-term asset preservation of buried piping.

Consequences

- vulnerability to undetected degradation
- unexpected through-wall leaks
- excessive impressed voltage that can cause disbonding of pipe coating, resulting in accelerated corrosion rates
- forced shutdowns
- unplanned system unavailability and limiting condition of operation
- exceeding environmental liquid release limits (radioactive liquid, fuel oil), resulting in permit violation

Causes

- Managers were not aware of the extent of degradation.
- System health reports did not provide sufficient details, or there was no health report for the cathodic protection system.
- Because no pipe failures have occurred, there is overconfidence that coatings will not degrade.
- No actions have been taken to improve cathodic protection system performance because the system was considered a backup to pipe wraps and coatings.

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MAP 09-57

Approvals: (signature)

Originator: G. Seals/ Gregory Seals Date: 4/17/09
Print/Sign

Task Manager: R. Korker/ Date: 4/17/09
Print/Sign

RP Supervisor: R. Heffner Date: 4/17/09
Print/Sign